

CLAIMS

1. A catheter assembly allowing for non contaminated insertion of the catheter into a urinary canal, said assembly comprising:
 - a urinary catheter defining a conduit and having a proximal end adapted for insertion into a urinary canal of an individual and an opposite distal end, and
 - a catheter package having a hose with a cavity for accommodation of the catheter and, in a proximal end thereof, a catheter outlet adapted to dismantle the proximal end the catheter from the catheter package, and
 - sealing means adapted to provide a substantially liquid tight seal between the catheter package and the urinary catheter, while the catheter is being dismantled.
2. A catheter assembly according to claim 1, wherein the sealing means is provided in the proximal end of the package, the cavity thereby defining a receptacle between the catheter and the hose (for a friction-reducing substance).
3. A catheter assembly according to claim 1 or 2, wherein the sealing means is arranged between an outer surface of the urinary catheter and an inner surface of the hose, the cavity thereby defining an upper receptacle located near the proximal end of the package and an oppositely located lower receptacle between the catheter and the hose (for a friction reducing substance).
4. A catheter assembly according to any of the preceding claims, wherein the sealing means comprises a radially outwardly extending protrusion of the outer surface of the catheter.
5. A catheter assembly according to any of claims 1-3, wherein the sealing means comprises at least two radially outwardly extending protrusions of the outer surface of the catheter.

6. A catheter assembly according to claim 5, wherein at least two of the at least two protrusions are provided with different radial sizes.

7. A catheter assembly according to any of claims 4-6, wherein at least one protrusion defines a resilient vane adapted to contact an inner surface of the hose.

8. A catheter assembly according to any of the preceding claims, wherein the sealing means comprises at least one radially inwardly extending protrusion of the inner surface of the hose.

9. A catheter assembly according to any of claims 1-7, wherein the sealing means comprises at least two radially inwardly extending protrusions of an inner surface of the hose.

10. A catheter assembly according to claim 9, wherein at least two of the at least two protrusions are provided with different radial sizes.

11. A catheter assembly according to claim 5 or 6, wherein at least one protrusion defines a resilient vane adapted to contact an outer surface of the catheter.

12. A catheter assembly according to any of the preceding claims, wherein the sealing means comprises a ring shaped member arranged between an inner surface of the hose and an outer surface of the catheter.

13. A catheter assembly according to claim 12, wherein the ring shaped member is displaceably arranged between the inner surface of the hose and the outer surface of the catheter.

14. A catheter assembly according to any of claims 12-13, wherein the ring shaped member is adapted to co-operate with an inwardly extending protrusion of the inner surface of the hose.

15. A catheter assembly according to any of claim 12-14, wherein the ring shaped member is adapted to co-operate with an outwardly extending protrusion of the catheter.

16. A catheter assembly according to any of the preceding claims, wherein the distance from the proximal end of the catheter package to the position of the sealing means constitutes between 0 and 100 % of the total distance between the proximal end of the catheter package and the opposite distal end of the package, such as 0%, such as 10%, such as 20%, such as 30%, such as 40%, such as 50%, such as 60%, such as 70%, such as 80%, such as 90% or such as 99%.

17. A catheter assembly according to any of the preceding claims, wherein the sealing means is adapted to provide a substantially liquid tight seal between the catheter package and the catheter, while a first length of the catheter is being dismantled over a first dismantle period.

18. A catheter assembly according to any of the preceding claims, wherein a liquid flow channel is defined between the catheter package and the catheter while the catheter is being dismantled over a second dismantle period.

19. A catheter assembly according to any of claims 17-18, wherein the length of the first dismantle period constitutes between 0 and 100 % of a total length of the package, such as 0%, such as 10%, such as 20%, such as 30%, such as 40%, such as 50%, such as 60%, such as 70%, such as 80%, such as 90% or such as 100%.

20. A catheter assembly according to any of claims 17-19, wherein the substantially liquid tight seal is provided continuously between the catheter package and the catheter over the first dismantle period.

21. A catheter assembly according to any of the preceding claims, wherein the catheter is provided with an outer surface part which, when treated with a friction-reducing substance, exhibits a low friction surface character.

22. A catheter assembly according to claim 21, wherein the package defines a liquid tight wetting pocket for treatment of the surface part with the substance.

23. A catheter assembly according to any of claims 21-22, further comprising an amount of the substance sufficient for effecting a treatment of at least the proximal end of the catheter, so as to provide a low friction surface property of at least that part of the catheter surface.

24. A catheter assembly according to claim 23, wherein the amount of the substance is contained in a pouch connected to the assembly.

25. A catheter assembly according to claim 24, wherein the pouch constitutes a closure for closing one of either the proximal or distal ends of the package.

26. A catheter assembly according to any of claims 23-25, wherein the substance is a lubricant.

27. A catheter assembly according to any of claims 23-25, wherein the substance is a water based solution for treatment of a hydrophilic catheter.

28. A urinary catheter according to any of the preceding claims, wherein the package is provided with an opening for draining a liquid substance out of the package, said opening being closed by closing means connected to said catheter for causing opening of the package upon removal of the catheter from the package.

29. A urinary catheter according to claim 28, wherein the opening is provided in the distal end of the package.

30. A catheter assembly according to any of claims 28-29, wherein the opening is being closed by a distal end of the catheter itself.

31. A catheter assembly according to any of the preceding claims, wherein the package is formed with a wall of a substantially gas impermeable material so as to allow long time preservation of the catheter and a liquid substance in the package.

32. A catheter assembly according to any of claims 28-31, wherein the closing means connected to the urinary catheter is provided with a flow channel co-operating with an outlet provided in the package so as, in a first position of the closing means in relation to the outlet, to prevent a liquid substance to flow from the conduit of the catheter and out of the package.

33. A urinary catheter assembly according to claim 32, wherein the outlet and the flow channel provided so as, in a second position of the closing means in relation to the outlet, to allow a liquid substance to flow from the conduit of the catheter and out of the package.

34. A urinary catheter assembly according to claims 32-33, wherein the flow channel of the closing means further comprises at least one inlet allowing a liquid substance to flow between the one of either the lower or upper receptacles and the conduit of the catheter.

35. A urinary catheter assembly according to claim 34, wherein the inlet of the closing means is adapted to allow a liquid substance to flow substantially in one direction and to prevent a liquid substance to flow in the opposite direction.

36. A urinary catheter assembly according to claim 35, wherein said direction is the direction from one of either the lower or upper receptacles and into the conduit.

37. A catheter assembly according to any of the preceding claims, wherein the hose is formed with a wall of a flexible material so as to allow the hose wall to be squeezed into contact with the

catheter by finger pressure for use as an applicator for guided non-contaminating insertion of the catheter.

38. A catheter assembly according to any of the preceding claims, wherein the hose is provided with a variable length, allowing the hose to be contracted for exposing the proximal end of the catheter through the catheter outlet.

39. A catheter assembly according to claim 38, wherein the variable length is provided by a telescopic arrangement of a first part of the hose in relation to a second part of the hose.

40. A catheter according to any of claims 38-39, wherein the variable length is provided by a concertina folded wall part of the hose.

41. A catheter assembly according to any of the preceding claims, wherein package is being closed in the proximal end by a detachable closure.

42. A urinary catheter assembly according to any of the preceding claims, wherein the catheter package further comprises a compartment being closed in a first end whereas in a second opposite end it is detachably connected with said hose, the compartment being formed with a wall of a flexible material so as to allow the compartment wall to be squeezed into contact with the catheter by finger pressure for use as an applicator for guided non-contaminating insertion of the catheter into the urinary canal after opening the first closed end and detachment of the compartment from the hose.

43. A catheter according to claim 42, wherein the compartment is connected with the proximal end of the package so as to allow the compartment wall to be squeezed into contact with the proximal end of the catheter.

44. A catheter assembly according to any of claims 42-43, wherein a detachable cover member is closing the first end of the compartment.

45. A catheter assembly according to claim 44, wherein the detachable cover member is re-connectable to the first end of the compartment.

46. A catheter assembly according to any of claims 42-45, wherein the compartment is provided with a gripping zone for easing the grip during use of the compartment for insertion of the catheter into the urinary canal.

47. A catheter assembly according to any of claims 44-46, wherein the cover member is provided with a gripping zone for easing the grip during detachment of the cover member.

48. A catheter according to any of the preceding claims, wherein the hose is provided with a gripping zone for easing the grip during insertion of the catheter into the urinary canal.

49. A catheter assembly according to any of claims 46-48, wherein the gripping zones are substantially radially extending.

50. A catheter assembly according to any of claims 42-49, wherein the connection between the compartment and the hose is provided by a weakening line for tearing off the compartment from the hose.

51. A catheter assembly according to claim 50, wherein the connection between the compartment and the hose may be re-established by twisting and/or pushing the compartment onto the hose.

52. A catheter assembly according to any of claims 42-51, wherein the compartment is provided with a weakening line for opening the first end by tearing off a first end part of the compartment.

53. A urinary catheter assembly according to any of the preceding claims, wherein the distal end of the package is connected with a reservoir for accommodation of a liquid substance.

54. A urinary catheter assembly according to claim 49, wherein the reservoir provides accommodation for a volume between 0 and 5000 ml, such as 10 ml, such as 20 ml, such as 30 ml, such as 40 ml, such as 50 ml, such as 60 ml, such as 70 ml, such as 80 ml, such as 90 ml, such as 100 ml, such as 125 ml, such as 150 ml, such as 175 ml, such as 200 ml, such as 225 ml, such as 250 ml, such as 300 ml, such as 350 ml, such as 400 ml, such as 450 ml, such as 500, such as 600 ml, such as 700, such as 800, such as 900 ml, such as 1000, such as 1500 ml, such as 2000, such as 2500, such as 3000 ml, such as 3500, such as 4000 ml, such as 4500 or such as 5000.

55. A catheter assembly according to any of claims 53-54, wherein the connection between the distal end of the package and the reservoir is adapted to allow the liquid substance to flow in a direction from the package to the reservoir and to prevent the liquid substance to flow in a direction from the reservoir to the package.

56. A catheter assembly according to any of claims 53-55, wherein the reservoir defines a draining spout for draining the liquid substance out of the reservoir.

57. A catheter according to claim 56, wherein the draining spout is closed by a detachable cover member.

58. A catheter according to claim 57, wherein the detachable cover member is re-connectable for closing the spout.

59. A catheter according to any of claims 57-58, wherein the detachable cover member is connected to the spout via a tear-off line.

60. A catheter assembly comprising:

- a urinary catheter defining a conduit and having a proximal end adapted for insertion into the urinary canal of an individual and an opposite distal end, and
- a catheter package having a hose with a cavity for accommodation of the catheter and, in a proximal end thereof, a catheter outlet adapted to disengage the proximal end of the catheter from the catheter package and in an opposite distal end thereof, an opening being closed by closing means connected to said catheter for causing opening of the package upon removal of the catheter from the package.

61. A catheter assembly according to claim 60, wherein the opening is being closed by a distal end of the catheter itself.

62. A catheter assembly according to any claims 60-61, wherein the catheter is provided with an outer surface part which, when treated with a friction-reducing substance, exhibits a low friction surface character.

63. A catheter assembly according to claim 62, wherein the package defines a liquid tight receptacle for treatment of the surface part with the substance.

64. A catheter assembly according to claim 63, further comprising an amount of the substance sufficient for effecting a treatment of the surface part so as to provide a low friction surface property of at least that part of the catheter surface.

65. A catheter assembly according to claim 64, wherein the amount of the substance is contained in a pouch connected to the assembly.

66. A catheter assembly according to claim 65, wherein the pouch constitutes a closure for closing one of either the proximal or distal ends of the package.

67. A catheter assembly according to any of claims 64-66, wherein the substance is a lubricant.

68. A catheter assembly according to any of claims 64-66, wherein the substance is a water or saline solution for treatment of a hydrophilic catheter.

69. A catheter assembly according to any of claims 60-68, wherein the package is formed with a wall of a substantially gas impermeable material so as to allow long time preservation of the catheter and the substance in the package.

70. A catheter assembly according to any of claims 60-69, wherein the closing means connected to the urinary catheter is provided with a flow channel co-operating with an outlet provided in the package so as, in a first position of the closing means in relation to the outlet, to prevent a liquid substance to flow from the conduit of the catheter and out of the package.

71. A urinary catheter assembly according to claim 70, wherein the outlet and the flow channel provided so as, in a second position of the closing means in relation to the outlet, to allow a liquid substance to flow from the conduit of the catheter and out of the package.

72. A urinary catheter assembly according to claims 70-71, wherein the flow channel of the closing means further comprises at least one inlet allowing a liquid substance to flow from the receptacle to the conduit of the catheter.

73. A urinary catheter assembly according to claim 72, wherein the inlet of the closing means is adapted to allow a liquid substance to flow in a direction from the receptacle to the conduit of the catheter and to prevent a liquid substance to flow in the opposite direction.

74. A catheter assembly comprising:

- a urinary catheter defining a conduit and having a proximal end adapted for insertion into the urinary canal of an individual and an opposite distal end, and
- a catheter package having a hose with a cavity for accommodation of the catheter and, in a proximal end thereof, a catheter outlet adapted to dismantle the proximal end the catheter from the catheter package, the hose being provided with a variable length, allowing the hose to be contracted for exposing the proximal end of the catheter through the catheter outlet.

75. A catheter assembly according to claim 74, wherein the variable length is provided by a telescopic arrangement of a first part of the hose in relation to a second part of the hose.

76. A catheter according to any of claims 74-75, wherein the variable length is provided by a concertina folded wall part of the hose.

77. A catheter assembly according to any of claims 74-76, wherein package is being closed in the proximal end by a detachable cover.

78. A urinary catheter assembly according to claim 77, wherein the detachable cover is re-connectable to the package.

79. A catheter according to any of claims 74-78, wherein the hose is formed with a wall of a flexible material so as to allow the hose wall to be squeezed into contact with the catheter.